areas of adjacent oriented fibers fused together to form a network or continuous matrix while retaining fibrous structure in the composite.

- 63. A prosthesis as claimed in Claim 62, wherein the fused fibers are in hopped form.
- 64. A prosthesis as claimed in Claim 62 being of a substantially void free form.

A prosthesis as claimed in Claim 62, wherein the inorganic filler is a particulate filler.

- 66. A prosthesis as claimed in Claim 62, wherein the filler is selected the group consisting of talc, mica, graphite, metal oxides, metal hydroxides, carbonates and phosphates.
- 67. A prosthesis as claimed in Claim 62, wherein the inorganic filler is a biocompatible material.
- 68. A prosthesis as claimed in Claim 67, wherein the biocompatible material is an apatite.

- 69. A prosthesis as claimed in Claim 68, wherein the apatite is hydroxyapatite.
- 70. A prosthesis as claimed in Claim 62, wherein the material is of extruded form.
- 71. A prosthesis as claimed in Claim 70, wherein the material is in hydrostatically extruded form.
- 72. A prosthesis as claimed in Claim 62, having flexural modulus between 7 and 30 GPa.
- 73. A prosthesis as claimed in Claim 72 having flexural modulus greater than 10 GPa.
- 74. A prosthesis as claimed in Claim 72 having a flexural modulus greater than 12 GPa.
- 75. A prosthesis as claimed in Claim 72 having a flexural modulus greater than 15 GPa.
 - 76. A prosthesis as claimed in Claim 62 having a flexural strength

between 50 and 150 MPa.

- 77. A prosthesis as claimed in Claim 76 having a flexural strength greater than 60 MPa.
- 78. A prosthesis as claimed in Claim 76 having a flexural strength greater than 80 MPa.
- 79. A prosthesis as claimed in Claim 76 having a flexural strength greater than 100 MPa.
- 80. A prosthesis as claimed in Claim 62 having a flexural ductility between 0.5 and 10 %.
- 81. A prosthesis as claimed in Claim 80 having a flexural ductility between 0.5 and 7%.
- 82. A prosthesis as claimed in Claim 81 having a flexural ductility between 0.5 and 4%.
- 83. A prosthesis as claimed in Claim 62, wherein the fibrous polymeric material is a polyolefin.

- 84. A prosthesis as claimed in Claim 83, wherein the polyolefin is polyethylene.
- 85. A prosthesis as claimed in Claim 83, wherein the polyethylene is of high modulus.
- 86. A prosthesis as claimed in Claim 62, wherein it includes a recrystallized melt phase of the polymeric material which has a melting point less than that of the oriented fiber and which binds the fiber material together.
- 87. A prosthesis comprising a composite material, said composite material comprising a particulate inorganic filler material and a fibrous polymeric material wherein the fibrous polymeric material comprises molecularly oriented polymeric fibers and a recrystallized melt phase of the same polymer as the fibers, the recrystallized melt phase consisting of from 5% to 50% by weight of the polymeric material and having a melting point less than that of the molecular oriented fiber, the recrystallized melt phase joining areas of adjacent fibers to form a network or continuous three-dimensional matrix which binds the fibers and filler together.

- 88. A prosthesis according to Claim 62, wherein the polymeric material is a homo- or co-polymer of a polyolefin.
- 89. A prosthesis as claimed in Claim 88, wherein the polymer has a weight average molecular weight of 50,000 to 3,000,000.
- 90. A composite as claimed in Claim 89, wherein the polymer has a weight average molecular weight of 100,000 to 3,000,000.
- 91. A prosthesis as claimed in Claim 90, wherein the polymer has a weight average molecular weight of 500,000 to 3,000,000.
- 92. A prosthesis as claimed in Claim 62, wherein the fiber is gel or melt spun fiber. --